

Naval Facilities Engineering Service Center



Jan/Feb 2000

***...Providing Support to the Marine,
Sailor
and Seabee!!***

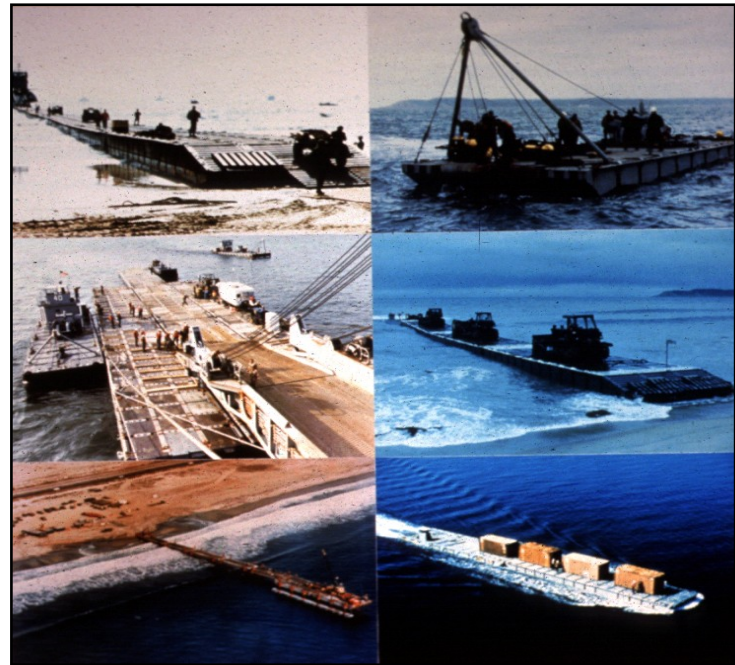
Mission

The Naval Facilities Engineering Service Center in addition to other activities conducts RDT&E, provides program and project leadership, planning and management, and provides expert consulting services in support of the Naval Expeditionary Force.

Specific areas of interest supported include:

- **JLOTS Technology Improvements**
- **Operational Maneuver From the Sea**
- **Expeditionary Warfare Support**

JLOTS Technology Improvements



ELCAS(M) Pile Splicing



Purpose

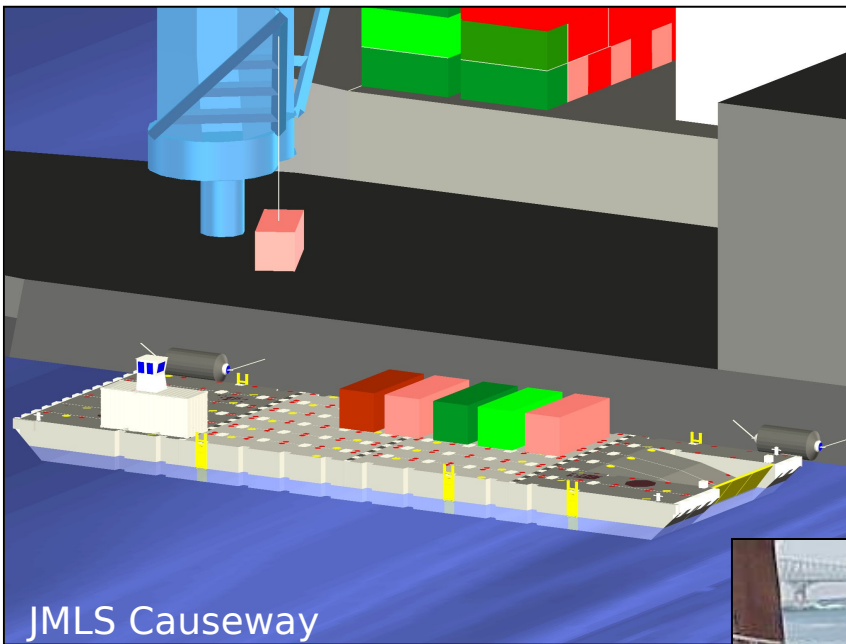
- Improve ELCAS(M) installation time

Solution

- Vertical Splicing (roadway and pierhead)
 - Old: 3 welders in 3 to 4 hrs
 - New: 1 welder < 40 min; safer and easier; demo'd FY99
- Horizontal Splicing (marshalling yard)
 - Old: 3 welders in 5 hrs
 - New: goal 1 welder in 1 hr; lab tested Aug 99; ready for field test but awaiting funding decision

Joint Modular Lighter System

- Next generation causeway system
 - Sea State 3 capable
 - Service interoperable
 - Intermodally transportable



Status

- R&D completed establishing feasibility
 - Modular concept (NFESC)
 - SS3 connections (NFESC)
 - Composite hull (CDNSWC)
- ACTD (Mar 1998 - May 2000)
 - Connection Tests Jul-Oct 1999
 - KR Demo Jan-Feb 2000
 - MUA Mar-May 2000



Amphibious Bulk Liquid Transfer System (ABLTS)



AABWS during Baltic Challenge '97,
Estonia

970714-M-0023H-003



Prototype ABLTS demonstration, Aug 1999, Coronado CA

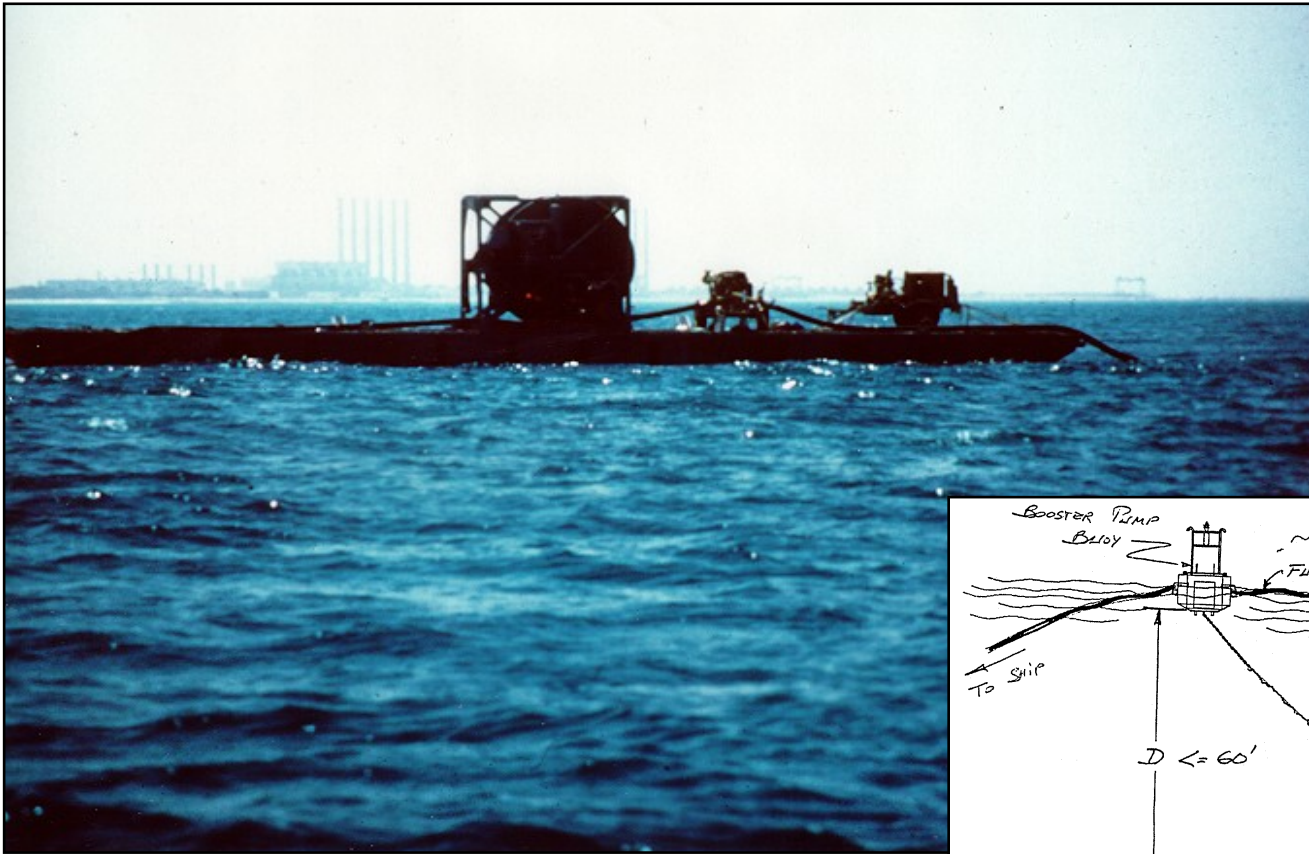
Capabilities

- 600 GPM, 10,000-ft Stand-Off
- 5,000-ft of 6-in fuel hose per reel
- 10,000-ft of 4-in water hose per reel

Improvements over AABFS/AABWS

- 40% reduction in weight & volume
- Air and highway transportable
- Reduced life cycle cost
- Increased RM&A
- Improved operational safety

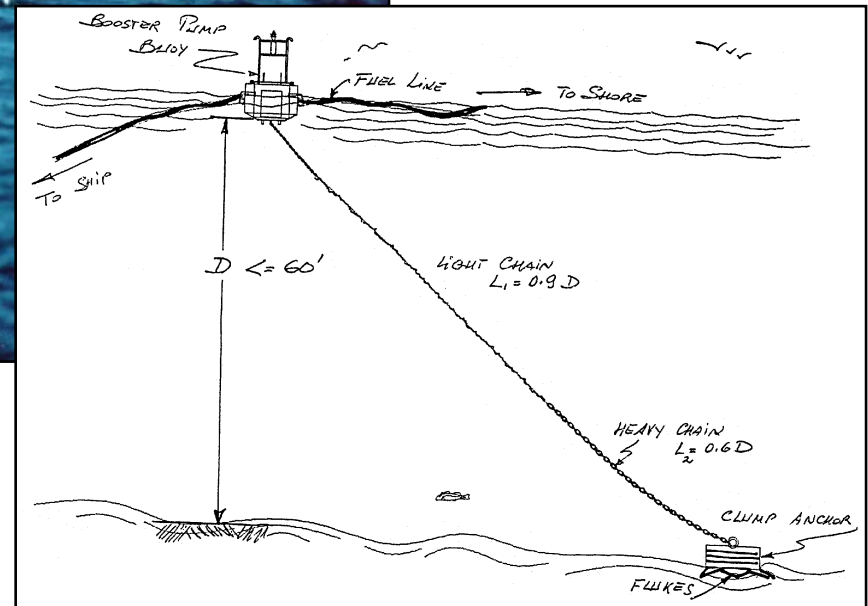
Autonomous Marine Booster Pump (AMBP)



**Seabee "Can Do"
solution**

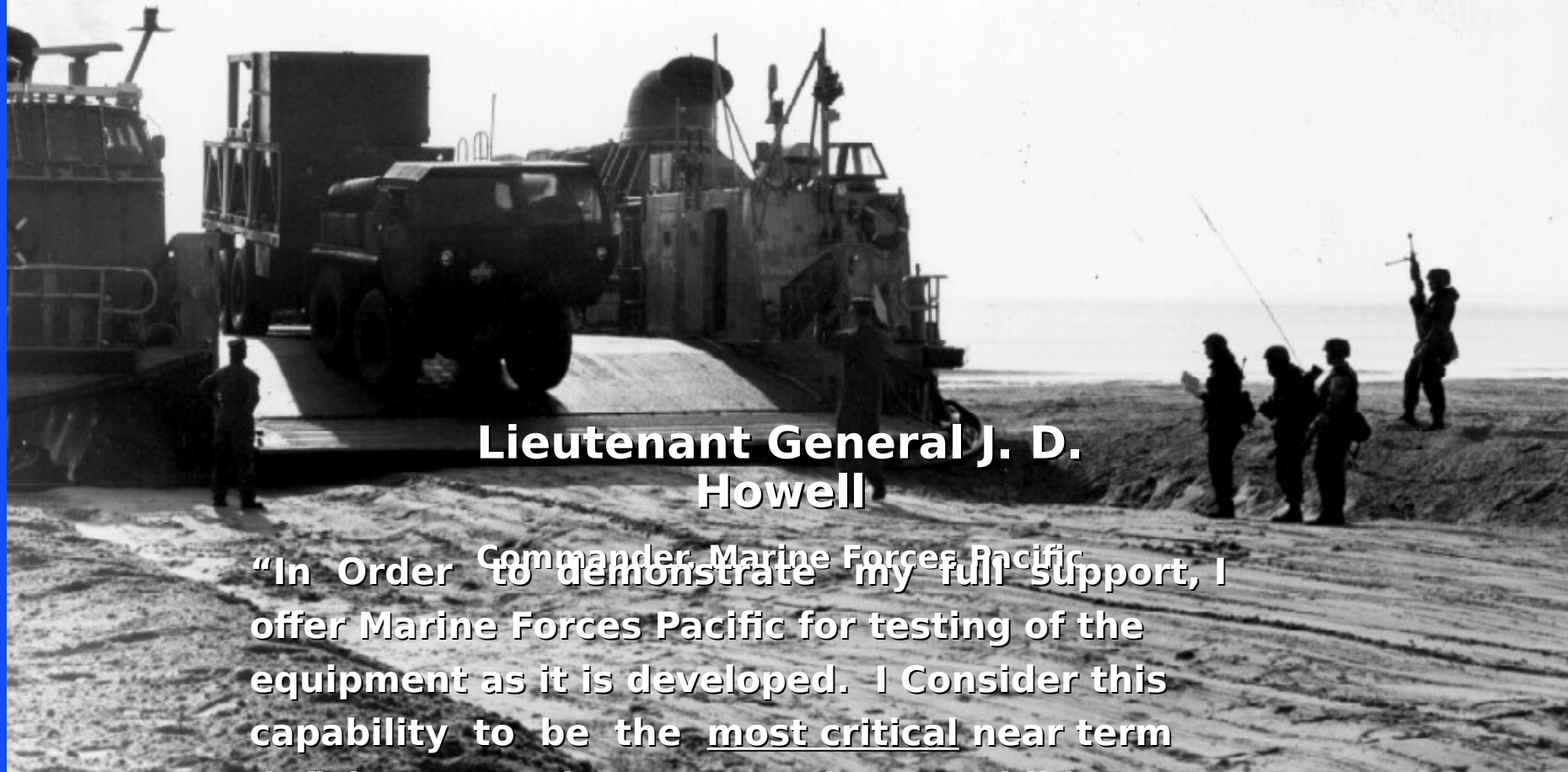
**Self-contained
and -supporting,
in-line pump**

Increase Standoff Distances and/or
Flowrates during Ship-to-Shore Bulk
Liquid transfer Operations.





D-Day Mobile Fuel Distribution (DMFD)



Lieutenant General J. D. Howell

“In Order to demonstrate my full support, I offer Marine Forces Pacific for testing of the equipment as it is developed. I Consider this capability to be the most critical near term

deficiency we have to conduct amphibious operations.”



DDMF Systems

15,000 Gallon System

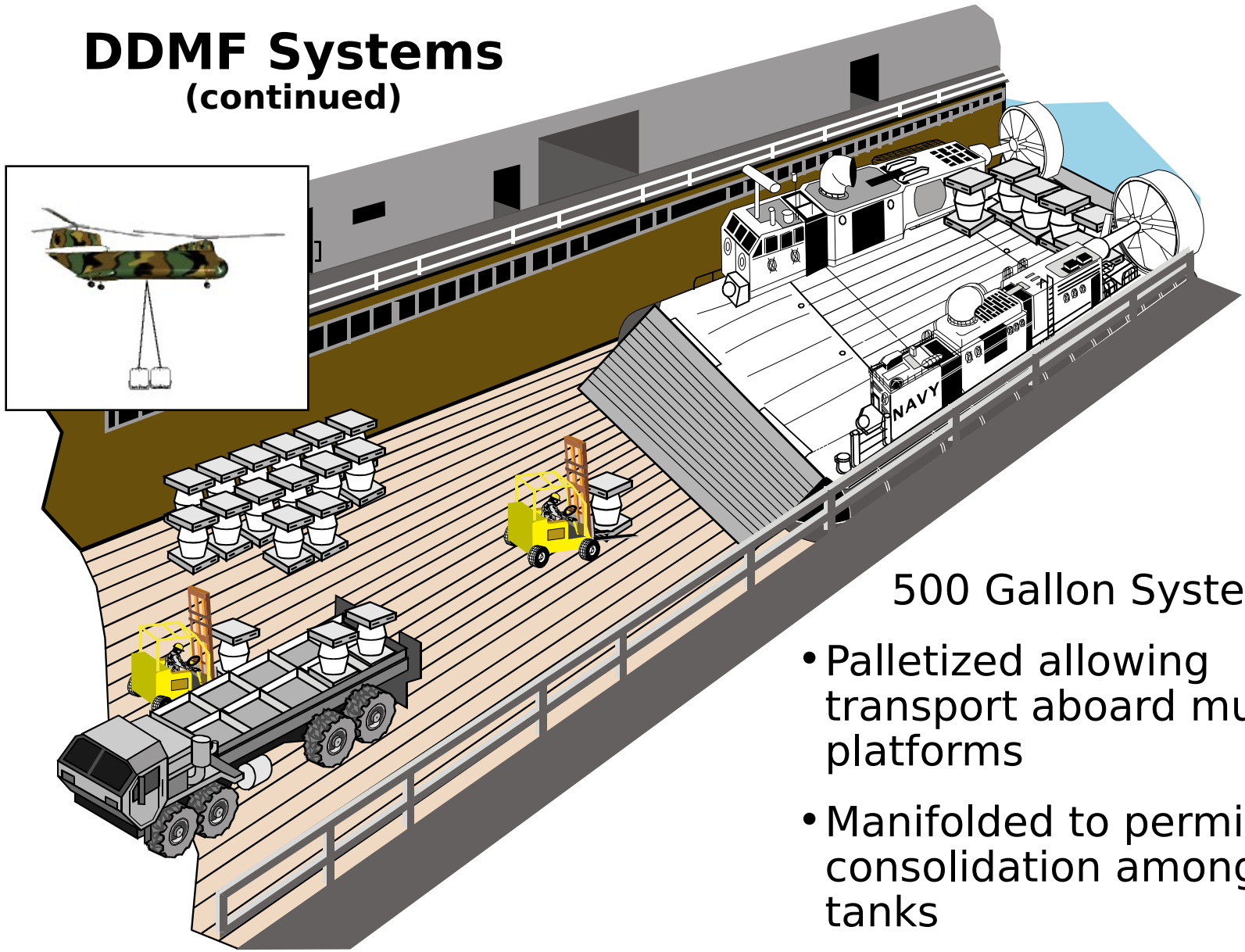
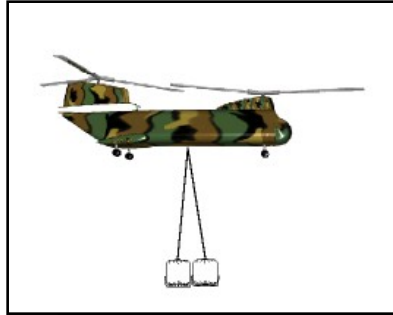
- Fixed to LCAC Deck (Dedicated Platform)
- Four bladders with disposable liners (extends shelf life)
- Testing conducted Aug/Sep 1998 with follow-up tests Aug/Sep 1999

3,000 Gallon System

- Flat rack mounted (LVS compatible)
- 3d weaving of bladder (36-in)
- Alternative material evaluation in process
- On-/off-road testing at Ft. Devens (FY98) and Camp Pendleton (FY99)



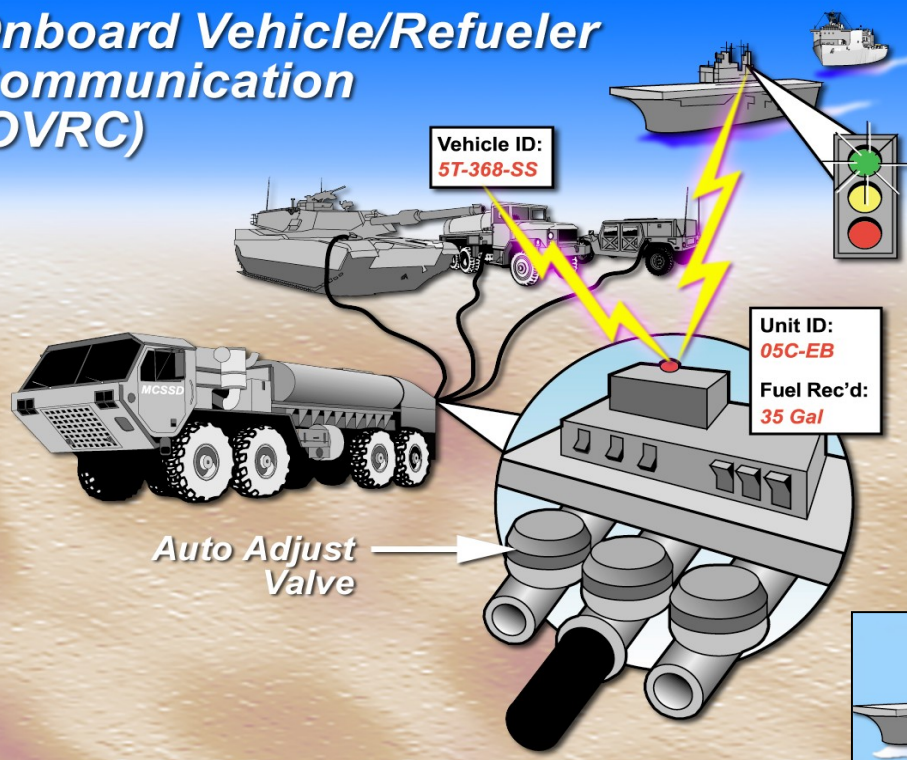
DDMF Systems (continued)



500 Gallon System

- Palletized allowing transport aboard multiple platforms
- Manifoldd to permit fuel consolidation among tanks
- Concept demonstrator under construction with field testing planned early

Onboard Vehicle/Refueler Communication (OVRC)



FAQS

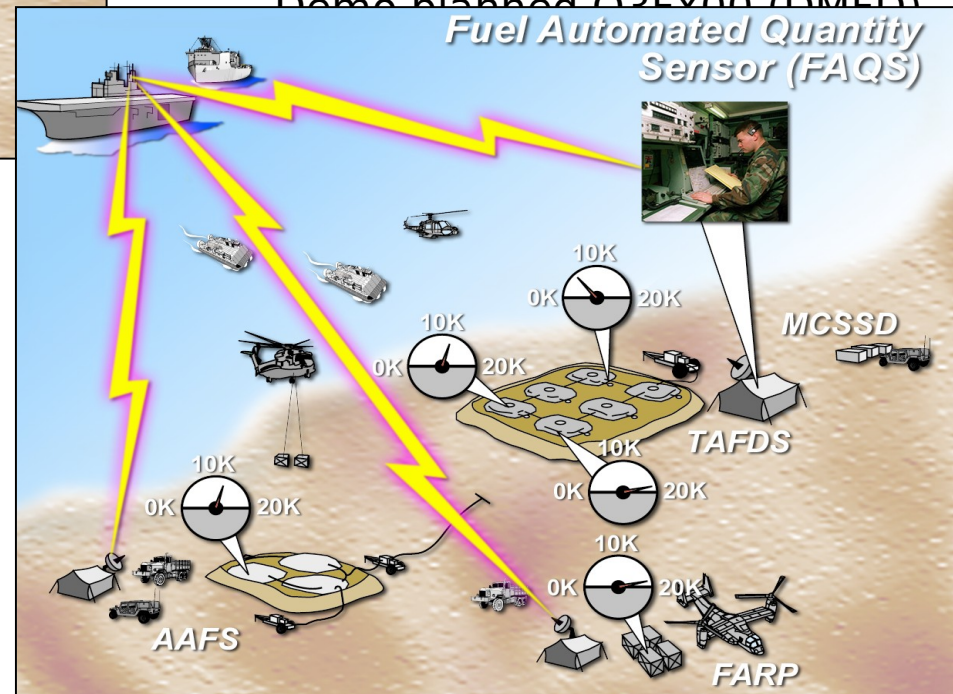
- Purpose
 - Provide local (e.g., tank farm) and global (battlefield) picture of fuel supply
- Status
 - Contract awarded to SwRI
 - Linked to TAV and SUL
 - Demo planned Q3FY00 (provide SUL real input)

USMC 6.3 Fuel Initiatives

OVRC

- Purpose
 - Collect/ transmit vehicle diagnostics sensor(s) output
- Status
 - Contract awarded to SwRI
 - TAV compatible tags and data links

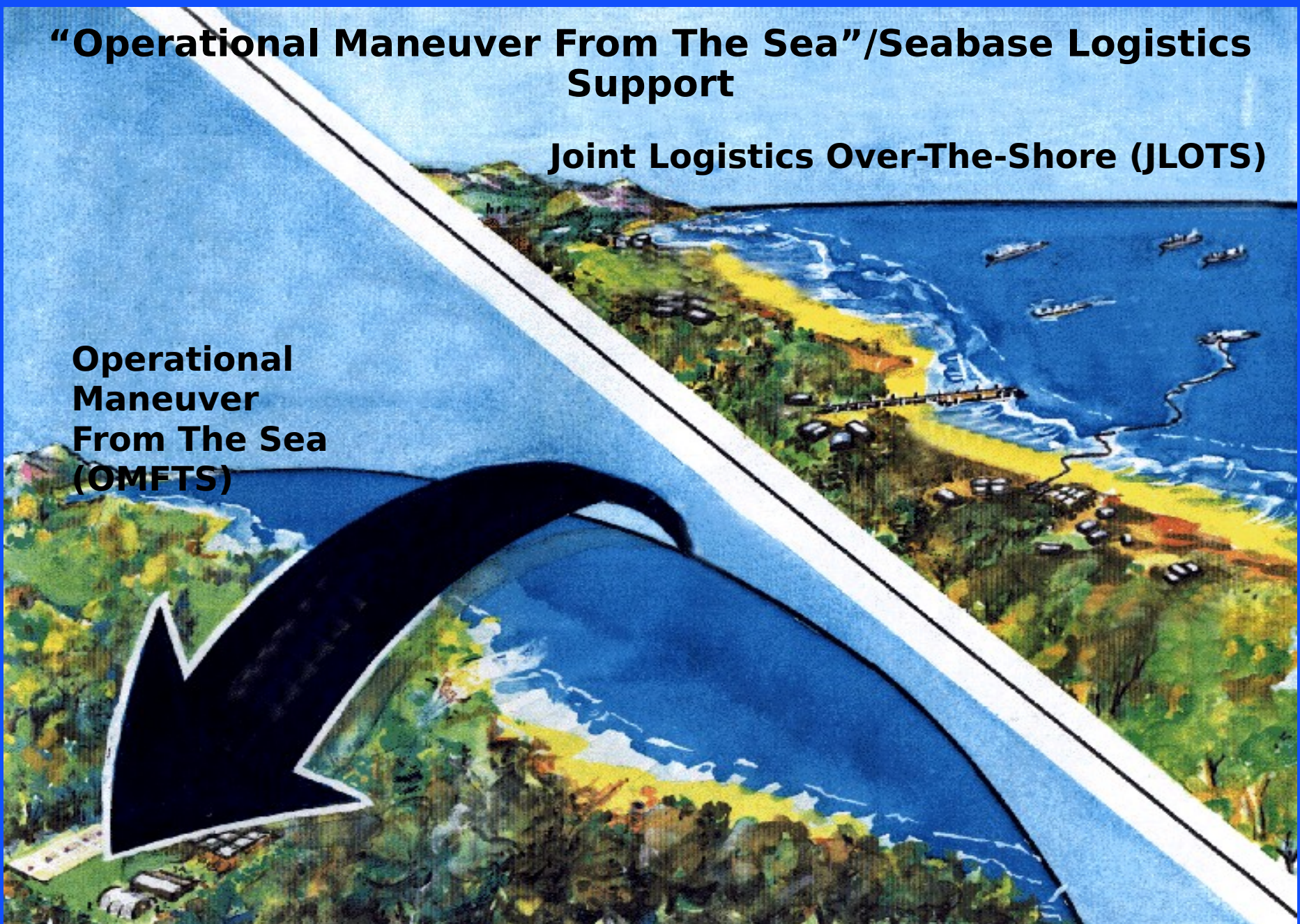
Demo planned Q3FY00 (DMED)

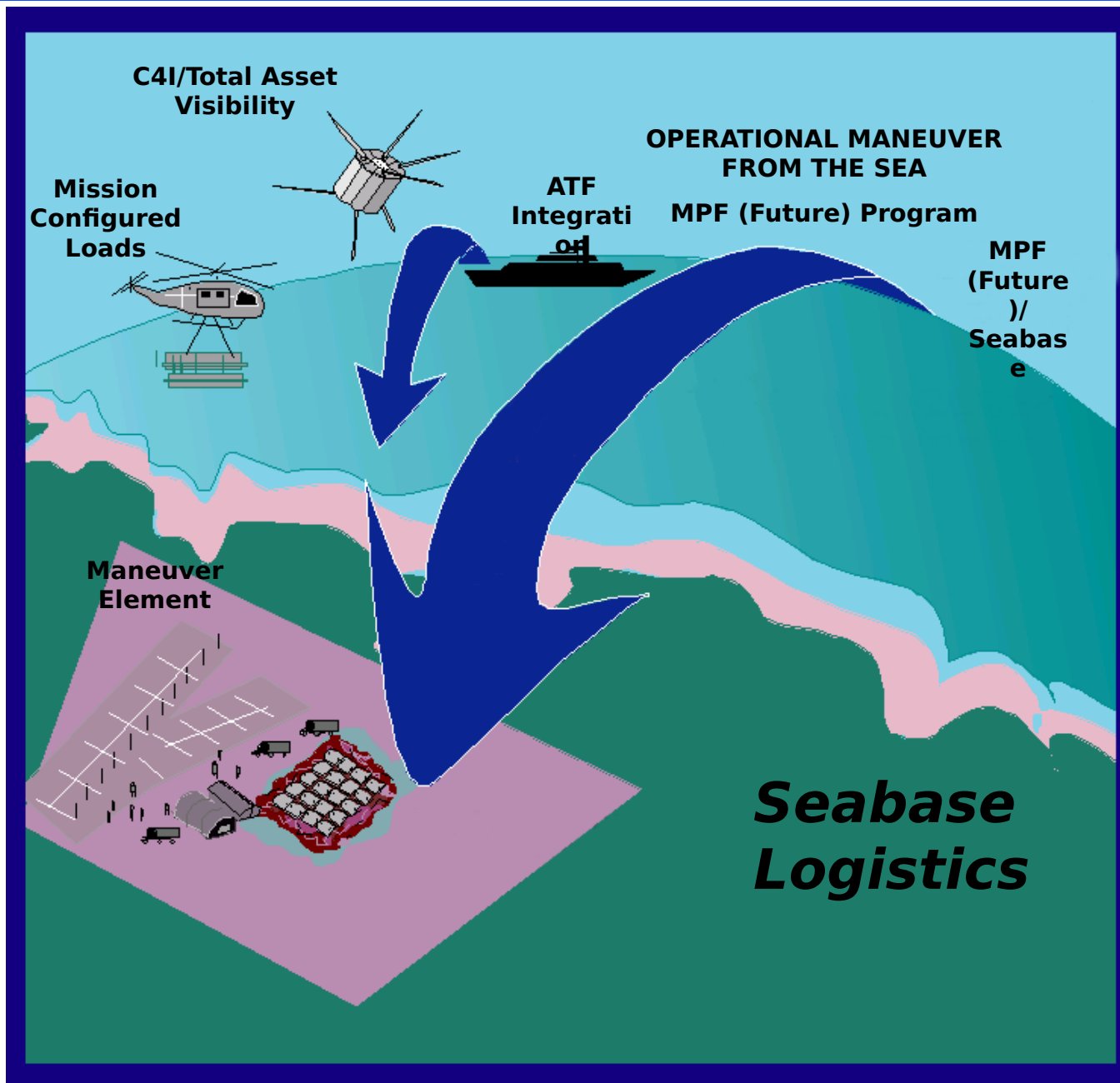


“Operational Maneuver From The Sea”/Seabase Logistics Support

Joint Logistics Over-The-Shore (JLOTS)

**Operational
Maneuver
From The Sea
(OMFTS)**





Sea Base Logistics

- **Objective**

- **Develop critical Sea Base logistics technologies to enable the Navy/Marine Corps Team to perform Operational Maneuver from the Sea.**

- **Payoffs**

- **Capability to manage large scale Sea Base logistics**
 - **Capability for selective offload of Sea Base ship(s)**
 - **Capability to resupply Sea Base in SS 3**
 - **Capability to reconfigure for new missions**

- **Technology Areas**

- **Configuration (e.g., in-transit container mover, equipment washdown)**
 - **Cargo transfer (e.g., batch liquids supply and distribution)**
 - **Warehousing & Distribution (e.g., warehouse automation)**
 - **Information Technology (e.g., SEAWAY, CLoaDS, OTH communications link)**

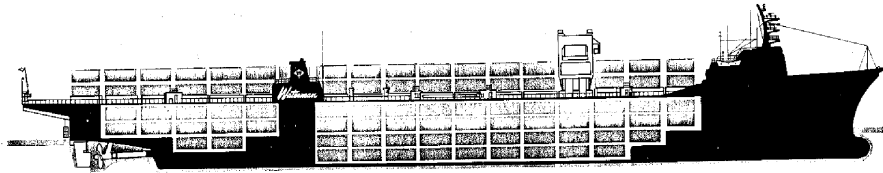
Expeditionary Container Handler



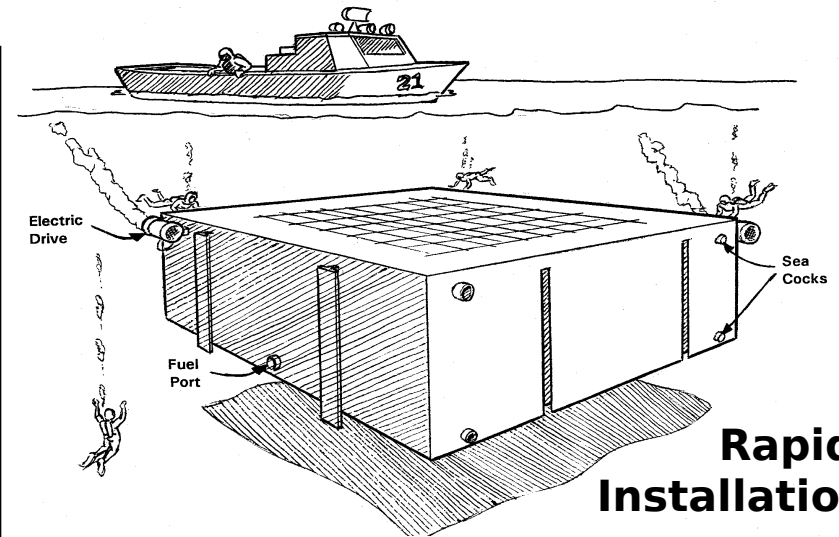
Engr, Supply & Packaging Tech



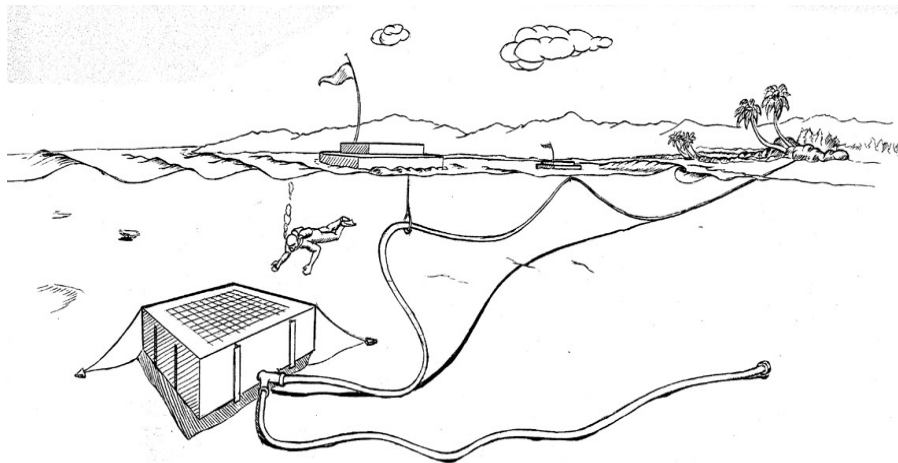
Submersible Fuel Cache



Modular - LASH Transportable



Rapid Installation



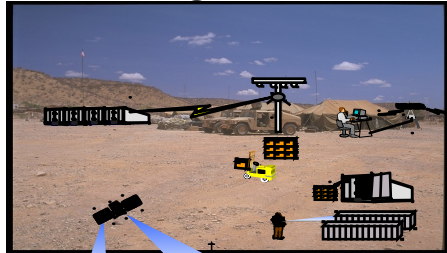
Bulk Transfer



**Nearshore Refueling
Module**

Asset Tracking

6.2 NTAV

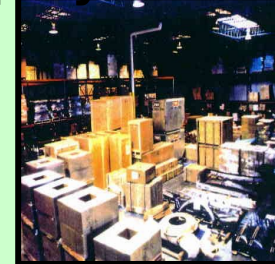


6.3 NAV



Commodity Planning Tools

6.2 Maint Deploy



6.2 Engr Survey



6.2 Sup

SPAWARSYSCEN



(VIDW)

Log Databases



(SNADP)

Web Tech



CSS Tech Integ

Log Info Systems

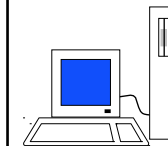
Legacy Systems



JMSIS



TC-AIMS II



GTN



Other

S

6.3 CSSOC AT



(FSSG)

(FSSG Forward)

CSSD/MSSG

CSSD

CSSOC



CSSOC Main



CSSOC Medium



CSSOC Light

COMMON SYSTEM ARCHITECTURE

Expeditionary Warfare Support



Small Unit Logistics (SUL) ACTD



Objective

- Improve tactical/small unit logistics C2
- Improve CSS effectiveness through course of action and execution tools

Capabilities

- Common tactical logistics picture
- COA analysis
- Leveraged logistics data
- Resource optimization

Technical Approach

- Apply web-based/ internet/ data interface to legacy information systems
- Apply Data Warehousing / Mart / Mining
- Utilize common tactical picture

Performers

- PACOM, MCSC, CASCOM, DARPA, NFESC

Schedule

TASKS	FY98	FY99	FY00	FY01
ACTD COORDINATION		▲	▲	
C2 ARCHITECTURE		▲	▲	
LOGISTICS ARCHITECTURE		▲	▲	
DECISION SUPPORT TECH			▲	▲
JOINT DEMONSTRATION				▲

Transition

- PM IS

Broad Area, Unmanned, Responsive Resupply Operations (BURRO)



Objective:

Support OMFTS. Expand seabase to landing force aerial delivery logistics support capability while reducing hazards to personnel.

Start/End Dates:

FY 97 - FY00

Performing Activities:

Kaman Aerospace Corporation, Marine Corps Warfighting Laboratory (MCWL) and NFESC.

Technical Goals

- Create an unmanned, autonomous aerial delivery platform for USMC logistics support, capable of operating to/from both land and maritime bases.
- Blend emerging multi-load technologies with delivery platform to provide for multiple drops per sortie capability.

Status

- Flight control system currently under development.
- First autonomous flight (with safety pilot) scheduled for November '99

Benefits

- Supports OMFTS logistics requirements.
- Multi-load/multi-target per sortie capability.
- Virtual all-weather/all-terrain aerial delivery capability.
- Eliminate aircrew risk when necessary such as in an NBC environment.
- Reduces logistics support vehicle requirement ashore.
- Increase options for delivery and throughput capable of keeping up with a maneuver element.

Guided Precision Aerial Delivery System (GPADS)



Objective:

Provide precision guided aerial delivery system capable of being dropped from standoff distances and compatible with existing aerial delivery host platforms, equipment and methods.

Performing Activities:

SSE Incorporated, Marine Corps Warfighting Laboratory (MCWL), Army Natick Research, Development and Engineering Center (NRDEC) and NFESC

Start/End Dates (NFESC):

JUN FY96 - SEP FY99

Technical Goals

- Create a precision guided aerial delivery system capable of unpowered, autonomous flight from a host aircraft to predetermined ground coordinates.
- Increase standoff distance for aircrew safety and covert delivery to ground forces.

Status

- Over 100 demonstration flights completed.
- MCWL will continue FY00 experimentation.
- Army continues to develop and field on a limited basis

Benefits

- Permits host aircraft to deliver payloads to target while operating farther away from area of action (reduces risk).
- Virtual all-weather/all-terrain aerial delivery capability (some wind limitations).
- Increases utilization of host aircraft by providing multi-load/multi-target per sortie capability.
- Supports OMFTS logistics requirements.

Material Handling/Heavy Equipment Repair Technology (MHE/HE REPTECH)



Objective:

Identify technical and business cost drivers which impact sustainment of Marine Corps heavy equipment.

Performing Activities:

Institute for Manufacturing and Sustainment Technology (IMAST) at the Pennsylvania State University Applied Research Laboratory and NFESC.

Systems Impacted:

All Combat Support Logistics Equipment (CSLE).
Focus on EBFL, HSHMC and SEE

Technical Goals

- Identify classes of components effected by age deterioration.
- Determine associated cost by class.
- Identify solutions to address deterioration issues.
- Perform cost benefit analysis for each solution.

Status

- Project definition settled on physics of age related failure. Draft PPD being reviewed by MARCORSYSCOM PM-CSLE to further define work in progress.

Benefits/Payoff

- Reduce cost of replacement and repair to Marine Corps heavy equipment inventory.
- Quantify costs associated with age deterioration by component class.
- Plan of action to improve sustainment of heavy equipment and improve readiness.
- Reduced life cycle costs.
- Improved acquisition.

Containerized Assembled Wash Facility (CAWF-C)



Objectives (Phase IIC):

- Recapture 98% of wash water
- Three stage drive over wash facility
- Full NBC decontamination
- Full agricultural pest kill
- Anti corrosion chemical wash

Capabilities Will Address:

- Environmental compliance in all host nations and when operated on board MPS
- Hazardous material containment
- Complete water recapture
- Full spectrum MPS vehicle cleaning

Key Technologies:

- Capable of removing all physical debris
- Capable of neutralizing NBC contamination
- Capable of killing all agricultural pests
- Capable of applying anti corrosion agents
- High water recovery (98%)

Challenge:

- Integration of CAWF with existing NBC decontamination procedures/agents, vehicle anti corrosion agents
- Three stage CAWF for continuous drive through vehicle washing/decontamination

Performers:

- OCTAFLEX AWT NEESC BIC

PHIIC (FY99/FY00)

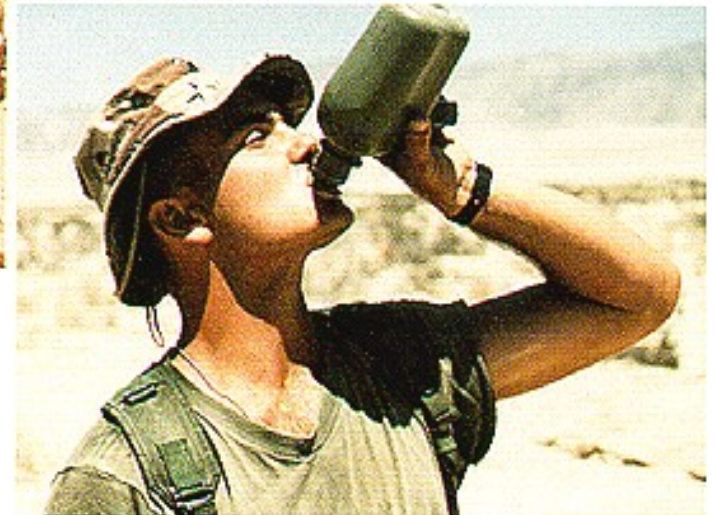
	1stQTR	2ndQTR	3rdQTR	4thQTR
OPT1 (NBC)	▲		▲	
OPT2 (3STAGE)	▲	▲		
OPT3 (TRACKED)		▲	▲	
OPT 4 (TRACKED)		▲	▲	
ADDITIONAL OPTS	▲		▲	
DEMONSTRATIONS		▲	▲	▲
ACQUISITION	▲			▲

TRANSITION: Blount Island Command

Containerized Assembled Wash Facility (CAWF-C)



Seawater Desalination Test Facility



**"We have slain the
mighty dragon,
but now we're
left with
numerous
pesky
snakes."**

